ECON 311 - Intermediate Macroeconomics (Professor Gordon)
Second Midterm Examination: Winter 2017
Answer sheet

YOUR NAME: ____

Student ID: ____

Circle the **TA session** you attend:

Bence – 3PM	Burke - 3PM	Chris - 3PM
Bence - 4PM	Burke - 4PM	Chris - 4PM

INSTRUCTIONS:

1. The exam lasts **1 hour**.
2. The exam is worth 60 points in total: 30 points for the multiple choice questions (Part A) and 30 points for the four analytical problems (Part B).
3. **Write your answers for part A (the multiple choice section) in the blanks below.** <u>You won't get credit for circled answers in the multiple choice section</u>.
4. **Place all of your answers for part B in the space provided**.
5. You must show your work for part B questions. There is no need to explain your answers for the multiple choice questions.
6. **You must turn in both the answers and the multiple-choice questions. DO NOT PULL THEM APART.**

Good luck!

PART A: Multiple Choice Problems
Answer multiple choice questions in the space provided below.
USE CAPITAL LETTERS.

1		6		11		16		21		26	
2		7		12		17		22		27	
3		8		13		18		23		28	
4		9		14		19		24		29	
5		10		15		20		25		30	

PART B: Analytic Problems

QUESTION 1 (5 points): Fiscal stimulus and budget deficit

Let the model economy be described by the following equations:
IS: $Y = 250 - 10r$,
LM: $Y = 100 + 15r$,
and the multiplier is 2. We will specify more potentially relevant parameters and exogenous variables as we go along.

(A.) Find the equilibrium income and interest rate. (2 points)

$250-10r = 100+15r$
$150 = 25r$
$r = 6$, $Y = 190$
(realize that the multiplier is redundant information here)

(B.) Assume that autonomous taxes are zero and transfers are zero, government spending is 40 and the average marginal income tax is 20%. How much is the actual government surplus/deficit? (1 point)

Surplus as function of income: $S(Y) = 0.2Y - 40$.
Plug in actual GDP to get actual surplus: $S(190) = -2$.
Government runs a deficit.

(C.) Given that government spending starts at 40, what is the new level of government spending that is needed to achieve the natural level of real GDP of 205? (2 points)

LM: $100 + 15r = 205 \rightarrow r=7$.
IS: $205 = 2(85 + G' - 5*7) \rightarrow G' = 52.5$
(multiplier is needed here)

QUESTION 2 (10 points): AS-AD

In this question we seek to connect AS-AD with IS-LM and monetary policy in a **closed economy** in which natural output is given by $\mathbf{Y^N = 60}$.

(A.) Suppose the demand side of the economy (i.e. the IS-LM part of the economy) is described by the following IS and LM curves:

IS: $Y = 75 - r$

LM: $Y = 4(M^S/P) + 2r$

Consider a case where initial *nominal* money supply is $\mathbf{M^S = 12}$. Using the IS and LM curves, derive the AD curve. (*Hint: Begin by solving the IS curve for r. Then substitute out r in the LM curve to derive an expression in terms of the endogenous variables of the AD curve.*) *(3 Points)*

1. Shift r to the LHS and Y to the RHS of (IS): $\mathbf{r = 75 - Y}$

2. Substitute the above into the (LM) curve and solve for Y:

$Y = 4(M^S/P) + 2r$

$Y = 4(M^S/P) + 2(75 - Y)$

$3Y = 4(M^S/P) + 150$

$\mathbf{Y = 16/P + 50}$

3. Though I don't expect students to do this on the test, it will be helpful to note that–due to the zero lowers bound and the requirement that the demand side of the economy be in equilibrium at all points on the AD curve– $Y=75$ for $P \leq 15/16$.

(B.) We now turn to the supply side of the economy. Suppose that nominal wages are initially such that $W=4$ (reminder: natural output is $\mathbf{Y^N = 60}$). Short run aggregate supply is described by:

SAS: $Y = 78.5 - 2.5W - (21/P)$

Find the short-run and long-run aggregate supply curves. *(2 Point)*

Short-run	$Y = 78.5 - 2.5*4 - 21/P = \mathbf{68.5 - 21/P}$
Long-run	$\mathbf{Y = Y^N = 60}$

(C.) Find the short- and long-run equilibrium values of (Y,P) for this economy. *(3 Points)*

Short-run. Solve for the equilibrium condition.

$$Y(AD) = Y(SAS)$$
$$16/P + 50 = 68.5 - 21/P$$
$$37/P = 18.5$$
$$\mathbf{P^*(SR) = 2}$$

And therefore:

$Y^*(AD) = 16/2 + 50 = 8 + 50 =$ **58.**
$Y^*(SAS) = 68.5 - 21/2 = 68.5 - 10.5 = 58.$

Long-Run. Solve Y(AD) = Y(LRS) => $\mathbf{P^*(LR) = 1.6}$. Get $\mathbf{Y^*(LR) = Y^N = 60}$

(D.) Suppose that nominal wages adjust until the economy is at natural output. Will nominal wages rise or fall? Which curve(s) will move, and in which direction? *(2 Point)*

Note that wages only enter into the SAS curve; therefore, we know the **SAS will be the only curve to move**. From part c, we know that prices are above and output is below long-run equilibrium; therefore, **nominal wages will need to fall** to **shift the SAS curve outward** to natural output at a lower price level.

QUESTION 3 (15 points): Open-economy IS-LM model

Let a **small open economy** with perfect **capital mobility** and **flexible exchange-rate regime** be described by the following equations:

$C = 70 + 0.7(Y-T)$,
$T = 50$, $G = 55$,
$Ip = 60 - 4r$,
$NX = 70 - 0.2Y - 10e$,
$M^D/P = 0.25Y - 3r$,
$M^S/P = 50$,
where e is the exchange rate.

(A.) Assume that initially foreign and domestic interest rates are equal so that $r = r^f$ and let the foreign exchange rate **e=2**. Find the IS and LM equations. *(3 points)*

k = 1/(1-c(1-t) +nx) = 1 / (1 - 0.7 + 0.2) = 2
IS: Y = k*Ap(r)
= k*(Ca + G + Ia – b*r +NXa – k*e)
= 2*(70 - 0.7*50 + 55 + 60 – 4r + 70 – 10e)
= 440 – 8r – 20e
= 400 – 8r
LM: 50 = 0.25*Y – 3r
Y = 200 + 12r

(B.) Find the equilibrium income, interest rate and net export. *(3 points)*

400 – 8r = 200 + 12r
200 = 20r
r = 10 → Y = 320
NX = 70 – 0.2*320 – 10*2 = -14

(C.) Suppose that the people of this small open economy become more spendthrift: from now on, they save only 20% of the income they earn. How would GDP, the domestic interest rate and net exports change if we let the domestic and foreign interest rate diverge?

Hint: don't expect even numbers, round to your favorite number of digits between 2 and 4. (3 points)

k' = 1/(1 – 0.8 + 0.2) = 2.5
IS: Y = 2.5*(200 + 0.7*50 – 0.8*50 – 4r) = 487.5 – 10r
LM: Y = 200 + 12r
r = 13.0682, Y = 356.8184, NX = -21.3637

(D.) Does interest rate parity hold? If not, then investors and possibly the government and central bank will have to react. What is the new output and domestic interest rate? What factors adjust to get the economy here? *(3 Points)*

The high domestic interest rate will induce investors to increase their holdings of local assets. Buying those assets will a put upward pressure on the local currency. As a result, the local currency appreciates, i.e. *e* goes up.

By interest rate parity, $r = r^f = 10$.
LM: Y = 200 + 12r = 320.

(E.) What is the new exchange rate? *(3 Points)*

IS: Y = k*Ap(r)
= k*(Ca – c*Ta + G + Ia – b*r +NXa – k*e)
= 2.5*(70 – 0.8*50 + 55 + 60 – 4*10 + 70 – 10e)
= 2.5*(175 – 10e)
= 437.5 – 25e
320 = 437.5 – 25e
e = 4.7

PART A: Multiple Choice Problems

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

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1) The wealth effect refers to
A) the impact of household real wealth on consumption, savings, and the IS curve.
B) the impact of household real wealth on aggregate supply curve.
C) the impact of household real wealth on money, prices, and the LM curve.
D) the impact of household real wealth on short term and long term interest rates.

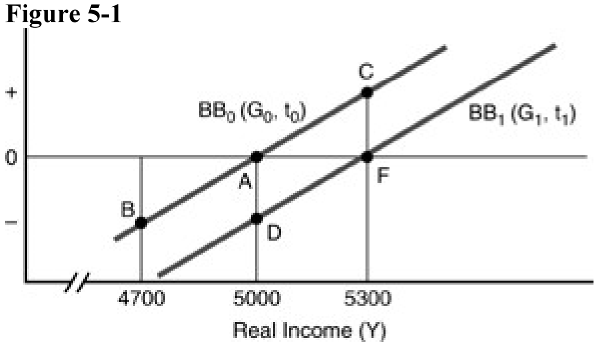
2) In the recent Global Economic Crisis, the end of cash-out mortgage refinancing caused
A) LM curve to shift to the right.
B) IS curve to shift to the left.
C) LM curve to shift to the left.
D) LM curve to shift to the right.

3) The common feature of the Great Depression and the Global Economic Crisis is
A) the immediate and the aggressive response by both government and the FED.
B) the active role of the FED before the crises.
C) that they were preceded by an asset price bubble.
D) the active role of the Government before the crises.

4) Suppose we have an economy for which G = 300, T = 240, S = 80, I = 45, and imports = 40. Exports must be
A) 65.
B) 25.
C) 15.
D) -25.
E) 40.

5) In a small open economy, the real interest rate will always be
A) equal to the world real interest rate.
B) above the world real interest rate.
C) below the world real interest rate.
D) independent of the world real interest rate.

Figure 5-1



6) In Figure 5-1 above, the impact of automatic stabilization is depicted by the movement from
A) A to C.
B) A to B.
C) A to F.
D) D to A.

7) Which of the following was not one of the "Six Blunders" that led to the 2008 crisis?
A) SEC allowed securities firms to raise leverage sharply
B) Fed allowed banks to fail
C) regulators allowed subprime loans to balloon
D) regulators allowed Lehman Brothers to fail

8) Ben Bernanke, former Chairman of the Fed, claimed which of the following as achieved by the Fed since the financial crisis?
A) modest inflation
B) declining labor force participation
C) declining unemployment
D) rising productivity growth
E) A) and B)
F) A) and C)

9) The government can continuously issue new bonds to pay the interest on its outstanding bonds so long as
A) the real interest rate exceeds the real GDP growth rate.
B) the nominal interest rate exceeds the cost of borrowing.
C) the real GDP growth rate exceeds the real interest rate.
D) the real interest rate exceeds the nominal interest rate.

10) In 1980, the U.S. budget was ________, private saving was ________ domestic investment, and foreign borrowing was ________.
A) in deficit, higher than, not needed to finance deficit
B) balanced, less than, substantial.
C) balanced, roughly equal to, not needed to finance deficit
D) surplus, greater, negligible

11) Borrowing to fund investment projects until the marginal rate of return falls to ________ is optimizing investment strategy for ________.
A) the borrowing rate, businesses and governments
B) the borrowing rate, governments but not businesses
C) zero, businesses and governments
D) zero, governments but not businesses
E) the borrowing rate, businesses but not governments

12) Society's rate of time preference is
A) the value that people place on the time saved by purchasing capital goods rather than consumer goods.
B) the extra amount people would be willing to pay to have consumption goods in the future instead of now.
C) is negative if people prefer present consumption to future consumption.
D) the extra amount people would be willing to pay to have consumption goods now instead of the future.

13) The "official reserve transactions balance" will be positive when
A) exports exceed imports.
B) the current account is in surplus.
C) U.S. official holdings of foreign exchange are falling.
D) the current account and capital account taken together are in surplus.

14) If U.S. firms sell some of their holdings of Treasury bills to other nations, this is recorded in the U.S. balance of payments table as a
A) current account credit.
B) capital account credit.
C) current account debit.
D) capital account debit.

15) What of the following is NOT among the factors contributing to low long-term interest rates?
A) aging of the world's population
B) high saving in China
C) high saving in the U.S.
D) growing income inequality

16) Which of the following is not one of the effects of the prospective Trump tax cuts, according to the analysis in the *Economist?*
A) rising current account deficit
B) falling current account deficit
C) difficulty of developing economies in repaying dollar-denominated loans
D) battle over exchange rates between the U.S. and China

17) If the Federal Reserve intervenes in the foreign-exchange markets and buys foreign currencies
A) the U.S. money supply falls and foreign currencies appreciate.
B) the U.S. money supply rises and foreign currencies depreciate.
C) the U.S. money supply falls and foreign currencies depreciate.
D) the U.S. money supply rises and foreign currencies appreciate.

18) If inflation is greater in Mexico by 10% than it is in the rest of the world then the purchasing power parity theory predicts that the
A) Mexican peso would depreciate.
B) Mexican peso would remain stable.
C) U.S. dollar would weaken.
D) Mexican peso would appreciate.

19) A stronger dollar implies that foreigners will find U.S. exports ________ and U.S. citizens will find imports ________.
A) less expensive; more expensive
B) more expensive; less expensive
C) less expensive; less expensive
D) more expensive; more expensive

20) A tax decrease shifts the IS curve, causing a ________ domestic interest rate, leading to ________ of the dollar.
A) lower, depreciation
B) higher, depreciation
C) lower, appreciation
D) higher, appreciation

21) A nation's foreign trade deficit implies a buildup of what ________ in allowing its imports to ________ its exports.
A) it owes to foreigners, fall short of
B) it owes to foreigners, exceed
C) foreigners owe to it, exceed
D) foreigners owe to it, fall short of

22) If the interest responsiveness of business firms investment is great then the
A) IS curve is horizontal and the AD curve is perfectly vertical.
B) IS curve is horizontal and the AD curve is perfectly horizontal.
C) IS curve is flatter and the AD curve is flatter.
D) IS curve is steeper and the AD curve is steeper.

23) A fall in the price level causes changes in the IS-LM diagram that can also be recorded as a
A) leftward shift of the AD curve.
B) rightward shift of the AD curve.
C) movement downward along an AD curve.
D) movement upward along an AD curve.

24) The Trilemma states that an open economy cannot simultaneously three objectives. Which of these objectives has China given up?
A) Autonomous monetary policy
B) Fixed exchange rates
C) Perfect capital mobility
D) The trilemma does not apply to China

25) Which of the following did not occur during the Great Contraction of 1929-33?
A) Rise in tariffs
B) Establishment of deposit insurance
C) Rise in income taxes
D) Bank failures

26) From one period to the next, the change in real GDP depends on the shift in aggregate demand
A) and on SAS, but only if it also shifts.
B) but not on how SAS might shift.
C) and on SAS, but only if it is horizontal.
D) and on the slope and shifting of SAS.

27) We derive the aggregate labor demand curve by horizontally adding all firms'

A) horizontal lines at the real wage.
B) supply curves.
C) production function curves.
D) marginal product of labor curves.

28) If, other things constant, the actual real wage is below the equilibrium real wage, the short-run aggregate supply curve in the next period would

A) shift downward and the price level would fall.
B) be unaffected and the price level would remain constant.
C) shift upward and the price level would increase.
D) be vertical and the price level would increase.

29) Pigou's explanation of the existence of unemployment required

A) Churchill's introduction of unemployment compensation.
B) wage "stickiness" or slowness of wages to adjust to changes in market conditions.
C) fixed goods price or slowness of prices to adjust to changes in market conditions.
D) all of the above.

30) Which of the following was not a part of the 2009-10 Obama stimulus?

A) Extension of unemployment benefits
B) Rise in infrastructure spending
C) Transfers to state and local governments
D) Permanent reductions of income tax rates

1) A
2) B
3) C
4) C
5) A
6) A or B
7) B
8) F
9) C
10) A
11) A
12) D
13) D
14) B
15) C
16) B
17) D
18) A
19) B
20) D
21) B
22) C
23) C
24) C
25) B
26) D
27) D
28) C
29) B
30) D